



**TURKISH ATOMIC ENERGY AUTHORITY  
CEKMECE NUCLEAR RESEARCH AND  
TRAINING CENTER**



**EDUCATION SECTION  
TURKEY**

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**EC/IAEA Nuclear Science Training Course with NUCLEONICA  
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# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



- There are no nuclear power plants in Turkey. The Turkish Atomic Energy Authority (TAEK) operates a 5 MW pool type research reactor with MTR type fuel (TR-2) in Çekmece Nuclear Research and Training Center (ÇNAEM) in İstanbul. It is used for radioisotope production, material tests and educational purposes. Another research reactor (TR-1) in ÇNAEM was dismantled in 1977. There is a Nuclear Fuel Pilot Plant being operated in ÇNAEM since 1986. It is facility using natural uranium, covering uranium refining and conversion to sinterable UO<sub>2</sub> and manufacturing UO<sub>2</sub> pellets. Radioactive waste is managed in centralised waste processing facility in ÇNAEM. Low and intermediate level radioactive waste is either processed or conditioned, or both, in this facility.



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- The Çekmece Center was founded in 1962 near Istanbul and is affiliated to the **TURKISH ATOMIC ENERGY AUTHORITY**. It is a government research centre and as such, may co-operate with universities and other scientific and research institutes in the development and application of nuclear science and technology for peaceful uses.





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ÇNAEM is located beside the Küçükçekmece Lake.  
Employed personnel is 230,

## FACILITIES :

Research reactor  
Ion accelerator - low energy  
Nuclear fuel pilot plant  
Low level radioactive waste processing plant

## LABORATORIES :

Calibration laboratory for radiation measurement instruments (SSDL)  
Development and production laboratory for radiation measurement instruments  
Radioisotope production laboratory  
Radioactivity analysis laboratories  
Chemical analysis laboratories  
Chromosome aberration analysis laboratory  
Non-destructive testing laboratory  
Ceramic material laboratory



# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



## ORGANISATIONAL CHART-2011

**DIRECTOR**

**CENTRAL MANAGER  
ASSISTANT-1**

**CENTRAL MANAGER  
ASSISTANT-2**

**CENTRAL MANAGER  
ASSISTANT-3**

Information Technology  
Unit

Emergency Response  
Teams Unit

Education Section

Application Division

Technology Division

Research-Development  
Division

Nuclear Facility Division

Reactor Operation Unit

Nuclear Fuel Plant Unit

Radioactive Waste  
Management Unit

Measurement and  
Instrument D.

Radioactivity Measurement  
and Analysis,

Analytical Measurement  
and Analysis Unit

Metrology Unit

Nuclear Electronics  
Unit

Units related to  
Administrative Works

Health Physic, Radiobiology,  
Radioisotope and Industry  
Units

Reactor Technology Unit  
Material Technology Unit



# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



## *APPLICATION DIVISION*

Application of all kind of audit, measure and required interventions for the radiation protection of ÇNAEM first of all, and then public and environment in the field of interaction of ionizing radiations with matter and livings,

Providing services for radiation protection,

Applied investigations on the biological effects of radiation,

All kinds of biological dosimetry, cytogenetic, radiobiological works,

Radioisotope and radiopharmaceutical applications for the needs of industry and medicine, development and creating an applicable form of these kinds of materials, their quality controls, radioisotope applications for the instrumentation and purpose of quality control in industry, Executing of non-destructive testing activities,



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## *MEASUREMENT and INSTRUMENTATION DIVISION*

- Department conducts instrumentation and measurement into the analysis of nuclear and radioactivity properties of matters for the needs of the country. Main tasks are;
- All kinds of radioactivity and elemental analysis in food, metal, soil, water, vegetation and environmental samples,
- Analytical measurements,
- Radioactivity measurements,
- Sampling, preparation of sample for analysis, measurement, evaluation of results and reporting,
- Improving the measurement and analysis methods ,
- Calibration of dosimeters and radiation survey meters used in industry, medicine, security and science,
- Improving methods for calibration and metrology,
- Designing and improving ionizing radiation survey meters used in industry, medicine, security and science, and producing them according to needs,
- Founding laboratories,
- Application of quality assurance and training of staff about quality assurance,
- Providing technical consulting in expertise for presidency of institution and directorate of the center.



# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



## NUCLEAR FACILITY DIVISION

- Nuclear Research Reactor, Nuclear Fuel Pilot Plant and Radioactive Waste Management facilities in ÇNAEM are operated under the Division of Nuclear Facilities according to the current national and international codes and practices; The activities are maintaining physical security, nuclear and radiological safety measures and applications, reporting and records of nuclear materials for safeguard inspections, quality management applications, training of personal for related fields, providing of technical consulting services in the field of expertise for the directorate and the presidency.



# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



## *TECHNOLOGY DIVISION*

- The studies on nuclear fuel technology at Çekmece Nuclear Research and Training Center started at the beginning of 1970s. At that time, studies were on laboratory scale and related to uranium ores and compounds. As the volume of work increased and expanded it became necessary to establish a new department. Nuclear Fuel Technology Division was established in 1977.
- Nuclear Fuel Technology Division was a unique unit in Turkey in charge of performing all activities in nuclear fuel field between 1977-2006. A new organisation has been in force on 24 April 2006 and Nuclear Fuel Technology Division was closed and Technology Division was established.



# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



## RESEARCH and DEVELOPMENT DIVISION

Research & Development (R&D) Division's mission is to carry out activities related to the neutron physics research and development in frame of the decision and vision of the presidency of Turkish Atomic Energy Authority (TAEK) in order to achieve the development of the country in the nuclear energy field and related technology.



# TURKISH ATOMIC ENERGY AUTHORITY CEKMECE NUCLEAR RESEARCH AND TRAINING CENTER



## *EDUCATION ACTIVITIES*

- Radiation protection and dosimeter course for people working with radiation.
- Non destructive test activities courses for industry workers.
- Internship opportunity for university students.
- Nuclear communication and public information.